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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,957	01/07/2002	Steven Teig	SPLX.P0044	5414

23349 7590 05/19/2004

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EXAMINER	
TAT, BINH C	

ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/041,957	Applicant(s) TEIG ET AL.	
	Examiner Binh C. Tat	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 09/03; 04/03, 02/05[illegible]; 02/06/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to application 10/041957 filed on 02/07/02.

Claims 27-47 remain pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the ad to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 27-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scepanovic (US Patent 5,578,840) in view of Raspopovic (US6230306).

3. As to claims 27, Sarrafzadeh et al. a method of pre-computing routes for nets in a region of an integrated circuit ("IC") layout, the method comprising: a) defining a set of partitioning lines for partitioning the region into a plurality of sub-regions during a. routing operation (see fig 5-9; col 1 lines 15-23 and abstract); b) for a set of potential sub-regions, identifying a set of routes that traverse the potential set of sub-regions, wherein at least one of the routes has at least one diagonal edge (figs 5-9 col. 1 lines 15-23, and fig 15 col. 10 lines 5-10);

Scepanovic did not teach storing the identified routes.

Raspanovic did teach storing the identified routes (col. 17, table 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the identified routes because store the identified routes could be utilized in the future for design if needed, which would improve design time.

4. As to claim 28 Sarrafzadeh et al. teach wherein a plurality of paths exist between the sub-regions defined by the set of partitioning lines, wherein a plurality of the paths are diagonal paths, wherein at least one of the routes traverses some of the diagonal paths (see fig 13, 14, 16 col.2; col. 10).

5. As to claims 29 Sarrafzadeh et al. teach wherein identifying the routes comprises identifying the paths between the sub-regions used by each route (see fig 13, 14, 16 col.2; col. 10).

6. As to claim 30, Sarrafzadeh et al. teach wherein a plurality of the paths are Manhattan paths, wherein at least one of the routes traverses some of the Manhattan paths (see fig 13, 14, 16 col.2; col. 10 and background and summary).

7. As to claim 31-33 Sarrafzadeh et al. wherein a plurality of edges exist between the sub-regions defined by the set of partitioning lines, wherein a plurality of the edges between the sub-regions are diagonal edges, wherein at least one of the routes intersects at least one of the diagonal edges (see fig 13, 14, 16 col.2; col. 10 and background and summary).

8. As to claim 34-36 Sarrafzadeh et al. further comprising: a) for each particular set of potential sub-regions from a group of potential-sub-region sets, identifying a set of routes that traverse the particular set of potential sub-regions, wherein some of the routes have diagonal edges (figs 5-9 col. 1 lines 15-23, and fig 15 col. 10 lines 5-10);

Scepanovic did not teach storing the identified routes.

Raspanovic did teach storing the identified routes (col. 17, table 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the identified routes because store the identified routes could be utilized in the future for design if needed, which would improve design time.

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9. As to claim 37 and 42 Sarrafzadeh et al. teach for a router that uses a set of partitioning lines to partition an integrated circuit ("IC") layout region into a plurality of sub-regions, wherein a plurality of routing paths exist between the sub-regions, a method of pre-computing routes for connecting said sub-regions, the method comprising: for each particular combination of two or more sub-regions, identifying at least one route for connecting the particular combination of said sub-regions (figs 5-9 col. 1 lines 15-23 and abstract); identifying the routing paths used by each identified route, wherein some of the identified routing paths are diagonal (figs 5-9 col. 1 lines 15-23, and fig 15 col. 10 lines 5-10);

Scepanovic did not teach storing the identified routing paths for each identified routes in a storage structure.

Raspanovic did teach storing the identified routing paths for each identified routes in a storage structure (col. 17, table 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to storing the identified routing paths for each identified routes in a storage structure because storing the identified routing paths for each identified routes in a storage structure could be utilized in the future for design if needed, which would improve design time.

10. As to claim 38 , 41 and 43 Sarrafzadeh et al. teach wherein some of the routing paths are horizontal (fig 5-9).

11. As to claim 39 and 44 Sarrafzadeh et al. teach wherein some of the routing paths are Manhattan (see fig 13, 14, 16 col.2; col. 10 and background and summary).

12. As to claim 40 and 45 Sarrafzadeh et al. teach wherein the Manhattan routing paths are defined with respect to a first grid, and wherein the diagonal routing paths are defined with respect to a second grid (see fig 13, 14, 16 col.2; col. 10 and background and summary).

13. As to claim 46 and 47 Sarrafzadeh et al. teach a method of pre-computing routes for nets in a region of an integrated circuit ("IC") layout, the method comprising: a) defining a set of partitioning lines for partitioning the region into a plurality of sub-regions during a routing operation, wherein a plurality of +45 diagonal paths and a plurality of Manhattan paths exist between the sub-regions (figs 5-9 col. 1 lines 15-23 and fig 13, 14, 16 col.2; col. 10 and background and summary); b) for a set of potential sub-regions, identifying a set of routes that traverse the potential set of sub-regions, wherein at least one of the routes utilizes at least one diagonal path and one Manhattan path (figs 5-9 col. 1 lines 15-23, and fig 15 col. 10 lines 5-10 and fig 13, 14, 16 col.2; col. 10 and background and summary);

Scepanovic did not teach storing the identified routes.

Raspanovic did teach storing the identified routes (col. 17, table 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the identified routes because store the identified routes could be utilized in the future for design if needed, which would improve design time.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh C. Tat whose telephone number is (703) 305-4855. The examiner can normally be reached on 7:30 - 4:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Binh Tat
Art Unit 2825
May 15, 2004

VUTHE SIEK
PRIMARY EXAMINER